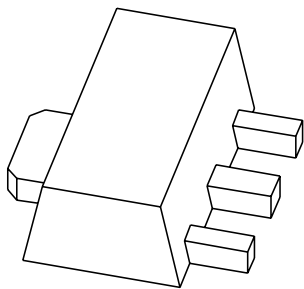


# DATA SHEET



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## PXTA27

### NPN Darlington transistor

Product specification  
Supersedes data of September 1994  
File under Discrete Semiconductors, SC04

1997 May 14

# NPN Darlington transistor

# PXTA27

### FEATURES

- High current (max. 0.5 A)
- Low voltage (max. 60 V).

### APPLICATIONS

- High input impedance preamplifiers.

### DESCRIPTION

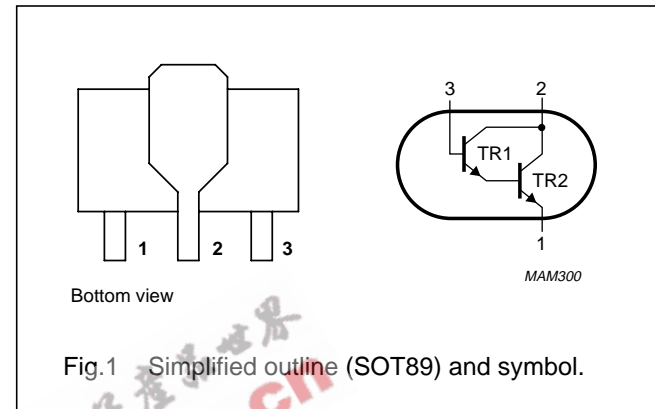
NPN Darlington transistor in a SOT89 plastic package.

### MARKING

TYPE NUMBER	MARKING CODE
PXTA27	A27

### PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base



### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	60	V
$V_{CES}$	collector-emitter voltage	$V_{BE} = 0$	–	60	V
$I_C$	collector current (DC)		–	0.5	A
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$	–	1.3	W
$h_{FE}$	DC current gain	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	10000	–	
		$I_C = 100\text{ mA}; V_{CE} = 5\text{ V}$	10000	–	
$f_T$	transition frequency	$I_C = 30\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	125	–	MHz

## NPN Darlington transistor

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**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter	–	60	V
V <sub>CES</sub>	collector-emitter voltage	V <sub>BE</sub> = 0	–	60	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	10	V
I <sub>C</sub>	collector current (DC)		–	0.5	A
I <sub>CM</sub>	peak collector current		–	1	A
I <sub>B</sub>	base current (DC)		–	200	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	1.3	W
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

**Note**

- Device mounted on a printed-circuit board, single sided copper, tinplated, mounting pad for collector 1 cm<sup>2</sup>.  
For other mounting conditions, see "Thermal considerations for the SOT89 in the General part of handbook SC04".

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-a</sub>	thermal resistance from junction to ambient	note 1	93	K/W
R <sub>th j-s</sub>	thermal resistance from junction to soldering point		12	K/W

**Note**

- Device mounted on a printed-circuit board, single sided copper, tinplated, mounting pad for collector 1 cm<sup>2</sup>.  
For other mounting conditions, see "Thermal considerations for the SOT89 in the General part of handbook SC04".

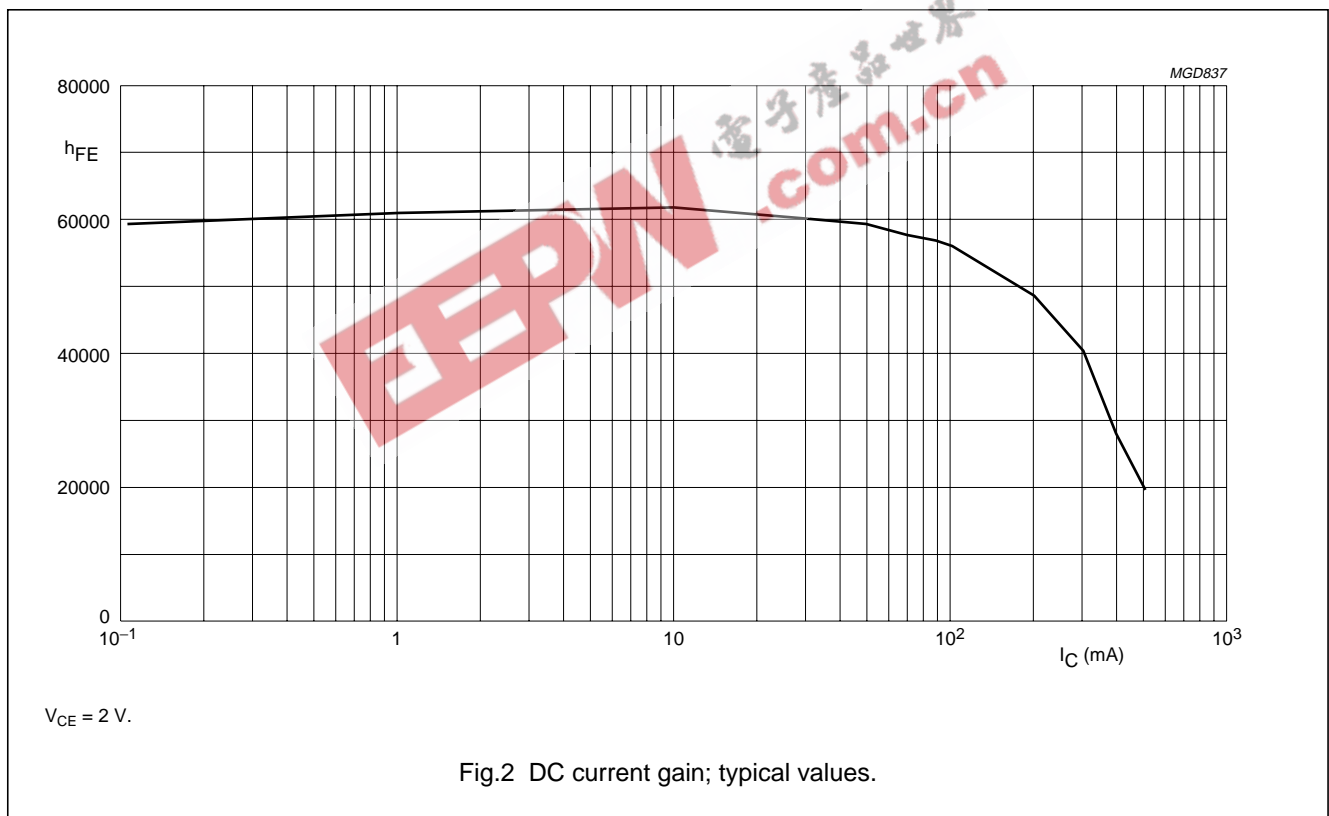
NPN Darlington transistor

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**CHARACTERISTICS**

T<sub>amb</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I <sub>CBO</sub>	collector cut-off current	I <sub>E</sub> = 0; V <sub>CB</sub> = 50 V	–	100	nA
I <sub>CES</sub>	collector cut-off current	V <sub>BE</sub> = 0; V <sub>CE</sub> = 50 V	–	100	nA
I <sub>EBO</sub>	emitter cut-off current	I <sub>C</sub> = 0; V <sub>EB</sub> = 10 V	–	100	nA
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> = 5 V; see Fig.2 I <sub>C</sub> = 10 mA I <sub>C</sub> = 100 mA	10000 10000	– –	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = 100 mA; I <sub>B</sub> = 0.1 mA	–	1.5	V
V <sub>BEsat</sub>	base-emitter saturation voltage	I <sub>C</sub> = 100 mA; I <sub>B</sub> = 0.1 mA	–	1.5	V
V <sub>BEon</sub>	base-emitter on-state voltage	I <sub>C</sub> = 100 mA; V <sub>CE</sub> = 5 V	–	2	V
f <sub>T</sub>	transition frequency	I <sub>C</sub> = 30 mA; V <sub>CE</sub> = 5 V; f = 100 MHz	125	–	MHz



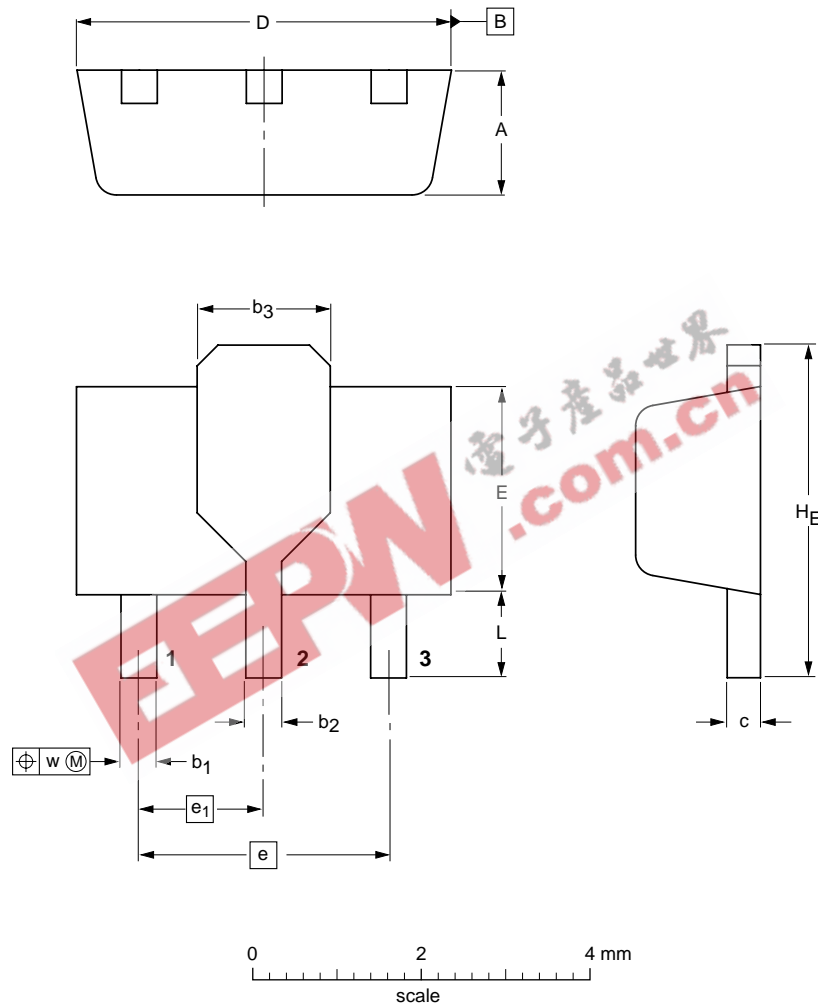
NPN Darlington transistor

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PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 3 leads

SOT89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L min.	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.37	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	0.8	0.13

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT89						97-02-28

## NPN Darlington transistor

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## DEFINITIONS

<b>Data Sheet Status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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NPN Darlington transistor

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